foundation than she knew. Recently she had my baby sister care for her (it being her first case, too) and now the dear one has passed to the Great Beyond at the ripe age of eighty-three.

SOME POINTS IN THE NURSING OF A FRACTURED FEMUR IN THE HOME

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THE care of a case of fracture of the femur falls naturally into two divisions: first, the surgical care, which includes diagnosis, reduction of the fracture, and selection and application of suitable apparatus for keeping the ends of the bone in position; second, the nursing care, which includes keeping the apparatus properly adjusted and promoting the patient's health and comfort in every way so that repair may be uninterrupted and that no complications may arise. The first belongs entirely to the surgeon, the second to the nurse.

To perform the nurse's part successfully she must keep in mind the anatomical condition which exists. When the femur is broken there is a marked tendency of the fragments to slip by or to override each other, due to spasmodic contraction of the powerful thigh muscles. In the treatment of the case the object is to bring the separated ends into apposition and to maintain this position by apparatus strong enough to antagonize the muscular contraction and to keep the limb quiet until union takes place.

Buck's extension apparatus is most frequently used for this purpose. It consists essentially of weights attached to a cord which runs over a pulley and is fastened to the leg by strips of adhesive plaster extending from just above the ankle to the point of fracture. In addition, a T-splint to immobilize the leg and body of the patient, and coaptation splints to immobilize the ends of the fractured bone are used. For old patients, who cannot endure the prolonged confinement in one position, a T-splint to secure fixation without extension or, in extreme cases, sand bags alone may be used. A patient may be very uncomfortable during the first few days from the constrained position and from the strain of the extension, there may be extreme restlessness, pain, and a rise in temperature. The friends are usually much distressed by these symptoms and should be reassured by the nurse, as in a few days the patient becomes accustomed to his condition and all goes

well, except in some cases where the patient is old and feeble. It is not uncommon for old patients to die in a few days from shock or to lie for weeks or months and die from kidney or lung complications, or exhaustion and septicæmia from bed-sores.

If Buck's extension is used it must be kept properly adjusted by the nurse; the sole of the foot must not rest against the foot of the bed because of loss of extension; the T-splint must not become loose and slip up or down or twist to one side; the straps holding the coaptation splints must be kept tight. It should be borne in mind that any displacement of the apparatus for holding the leg will allow corresponding displacement of the fragments of bone and cause delayed union and shortening of the limb. Whatever apparatus is used, the nurse should fully understand what it is meant to accomplish, that she may keep it working properly.

A proper bed is very important. It should be, preferably, of white enamelled iron, three feet wide and standing two feet from the floor, and should have a good firm mattress. If Buck's extension apparatus is used a bed without a solid foot-board will be necessary. The nurse should insist on a bed of this description if one can possibly be obtained; one may sometimes be found in a child's or a servant's room; if not, or if the matter has been settled before her arrival, she will have to make the best of what is to be used. The foot of the bed is elevated about eight or ten inches on blocks, and but one thin pillow is ordinarily allowed. A board a foot wide and long enough to reach across the bed should be slipped beneath the mattress under the patient's hips to prevent sagging of the hips and displacement of the broken ends of the bone. To keep the weight of the bedclothes from the patient's feet a support will be needed. A cradle may be bought at surgical supply houses or one may be improvised from barrel hoops cut in two and nailed to two parallel strips of wood twenty inches long. The cradle should be about eighteen inches high in the centre and wide enough to cover both feet.

The bed should stand near but not facing a light, as strong light striking directly on the eyes is very trying and makes reading, one of the few things these patients can do, difficult.

The bed should be made up with an under sheet, a rubber sheet a yard wide and, for a three foot bed, one and three-quarters yards long, a draw sheet long enough to tuck in well under the sides of the mattress. It should be doubled unless made of a very heavy twilled cotton, as close contact with the rubber sheet increases perspiration and favors the development of bed-sores. If a rubber sheet cannot be procured, "stork sheeting," table oil-cloth or even several layers of newspaper may

be used, but are much inferior. The outer bed coverings may be whatever the season and the patient's habits demand.

In making the bed, the under sheet need not be removed oftener than once in three or four days, as removal necessitates more moving of the patient than does changing of the draw sheet only, and all unnecessary moving is to be avoided, this being the only exception to the hospital rule that *all* linen must be removed from the bed when it is to be made up. Each day the sheet should be loosened all around, crumbs of food, epithelial scales, etc., brushed out with a whisk broom, the sheet drawn smooth and even and tucked in tightly all around. The practice of pinning sheets to the mattress is not a good one as it is almost certain to tear the linen and it is unnecessary if the sheets are large enough to be tucked in.

The draw sheet should be changed morning and night, at least. An absolutely fresh one is not needed each time but two may be kept for use alternately, day and night. Extra washing is the cause of much trouble in most families so the nurse should be economical in the use of linen but *not* at the expense of the patient's welfare. In families where help is limited it is not very much trouble for the nurse herself to wash out a draw sheet which need not be ironed if it is carefully folded, for it is the clean, dry surface that is important for comfort and to preserve the health of the skin.

Changing the bed linen is rather difficult because the patient cannot turn on the side and must be moved no more than is absolutely necessary for proper care of the skin. The only motion permitted the patient is a combination of turning slightly to the injured side while raising the sound side. Sometimes a "Bradford frame" is used and is very helpful, especially for heavy patients. It consists of a rectangular frame of iron piping made six inches longer than the patient's height and wide enough to clear the shoulders. It is covered with a casing of heavy canvas at each end with about eight inches span between the two, in the centre. This space is covered by a piece of canvas eight inches wide and long enough to reach across the frame; one end is fastened securely to the side of the frame and the other end attached to the opposite side of the frame by strong tapes or safety pins; this end is freed and turned back when the bedpan is to be used. The canvas is entirely covered by folded sheets. The patient lies on this frame and is raised up, frame and all, when the bed is made or the bedpan given.

When changing the linen, if the Bradford frame is not used, begin on the patient's well side, loosen all sheets and push them up close to the body. Open the fresh under sheet and plait it lengthwise, tuck it in on

the side nearest you and at the head and foot as far as you can reach, for if the sheets are placed on the bed evenly and well tucked in, there will be no wrinkles and they will not work loose. Fold together the freed edge of the soiled under sheet and the free edge of the draw one and press these edges as far under the body of the patient as you can, draw the rubber sheet back over the partly arranged under sheet and tuck it in well. Tuck in a clean draw sheet over the rubber sheet and arrange it with the soiled one in the same way as the under sheet was done. Now go to the other side of the bed and pull both draw and under sheet through beneath the patient, pull the rubber sheet smooth and draw all very tight and tuck in.

Bed gowns should be open in the back both for convenience in changing and because it is impossible to prevent wrinkles with any other kind. If the patient's gowns are of fine material it may be better to buy cheap ones for temporary use and open them down the back. if those the patient is accustomed to wearing are made with a yoke, they can be split up the centre of the back *as far as the yoke* and the torn edges hemmed by hand. Then the yoke can be easily slipped over the head. When the patient is convalescent the hems may be ripped out and the edges joined in a flat seam, leaving the gown still useful. In cold weather a small, old blanket is useful to wrap about the legs and feet, as the bedclothes not being in contact with the flesh, the patient feels the cold.

The greatest care must be exercised in the use of heaters, as in the early days after injury the circulation is interfered with and the foot may be numb, so a serious burn might be given before the patient would feel it. The safest way is to test the temperature of the water used for filling the heater with a thermometer; 120° F. is quite hot enough and the heater should be covered with thick flannel.

A patient's diet may be whatever is suited to his age and general condition. In a fracture case we have a patient often in his usual state of health, only crippled, not one whose digestive powers have been weakened by disease of the organs themselves or other exhausting illness, and there is no great waste of tissue to be repaired except in the case of a suppurating wound or extensive bed-sores. A young child may have its usual diet; an adult in good health may have anything he likes, in moderate amounts.

Very rich and indigestible articles, as well as excessive amounts, are better avoided. A patient who had been accustomed to a great deal of out-of-door exercise would not need nor could he digest when confined

to a bed the amount of fats and proteids he would need when engaged in his usual pursuits.

Aged patients should be fed with great care and only articles that are light, nutritious, and easily digested be given; eggs, milk, toast, cereals, stewed fruits, broths, oysters, etc. Chicken may be given, but other meats very sparingly.

It is very difficult for a patient to feed himself when lying on his back but he may prefer doing so if he can possibly manage it. If the nurse is to feed him she should avoid either a hurrying way or a mincing way of doing it; of the two, the latter is perhaps the more exasperating, especially to a nervous patient. If the patient is to feed himself the most convenient way is to have a bedside table which can be swung over the bed and adjusted to the desired height, or a wooden tray with legs about eight inches high so that it can be set on the bed across the patient's body, or, lacking this, an ordinary tray may be supported by blocks or books placed at each side of the patient. Whatever sort of table or tray is used, it should be covered with a neat tray cloth and the food served one course at a time from the tray on which it is brought to the room. Liquids may be taken through a bent glass tube.

Constipation must be prevented; if there is a tendency toward it, it is better avoided by daily small doses of a laxative rather than by the occasional use of a purgative. Cascara gr. x. may be given at night, or Hunyadis water ℥iv or Carlsbad salt ℥i in a glass of hot water, before breakfast. In all cases begin with a small dose and increase, if necessary, until the dose is found which will produce one good evacuation daily. If these measures are not sufficient to move the bowels, an enema of soapsuds Oi and glycerin ℥ii may be given every other day.

If the rectum becomes impacted with hardened fæces it may be necessary to unload it by mechanical means: give a low enema of warm sweet oil ℥iv two hours before starting the operation. Put on a rubber glove, or, if this cannot be had, fill all crevices about the finger-nails with hard soap and insert the finger, previously well oiled, into the rectum and remove the accumulation. The utmost gentleness must be used in this procedure or a painful fissure in ano may result.

Encourage the patient to drink water freely that waste may be eliminated and irritation of the bladder or urethra from concentrated urine may be prevented. If there is frequent voiding of small amounts of urine or a constant dribbling, retention with overflow should be suspected and the catheter inserted to see whether or not the bladder is really emptied. The catheter should always be boiled and the parts

very carefully cleansed with boric acid solution to prevent infection of the bladder.

Baths should be frequent; there are few patients who would not be the better for a daily bath. It is not practical to envelop these patients in a blanket before giving a full bath but pieces of old blanket or bath towels may be slipped beneath each part as it is washed, to protect the bed. The back and genitals should be washed with soap and water, carefully dried and powdered with talc powder when the morning and evening toilet is made. The vulva and nates should be washed or douched off with warm water and dried after each urination or movement of the bowels. A small piece of rubber or "stork sheeting" covered with a towel and slipped beneath the buttocks when the bedpan is given will save the draw sheet a great deal.

Sometimes the skin on the legs, and on the soles of the feet, especially, becomes dry and scaly, and may be the source of much discomfort to the patient. To relieve this, a little cold cream or vaseline may be rubbed into the skin some hours before the bath is given. If the feet have been long neglected it may even be necessary to apply a light flaxseed poultice to the soles for a day or two to soften the horny layers; then apply an unguent until the scales are removed and the skin is soft and smooth.

The injured leg should be examined daily for signs of irritation from pressure of any part of the apparatus. This may be around the ankle or lower leg from the adhesive plaster strips, over the tendo Achillis from the end of the posterior splint, around the thigh from the bandage cutting into the flesh or from slipping of the coaptation splints, or under the axilla from the T-splint working up too high. A slight readjustment of the splint, a small pad of sheet wadding, or cutting the bandage a little will often relieve this; if it does not, the surgeon's attention must be called to it.

Bed-sores are a constant menace in the care of these patients; in no condition except paralysis are they so likely to come or so difficult to cure, yet they can nearly always be prevented if proper care is taken *from the first,* and their prevention is one of the most important duties of the nurse. They are due to interference with the local circulation by prolonged pressure, accompanied by softening and excoriation of the skin from the moisture of perspiration or discharges from the bladder and rectum, or to the irritation from crumbs of food in the bed, or wrinkles in the surface on which the patient lies. They are most likely to come over the sacrum, on the heels and on the buttocks, but may appear in any place where there is prolonged pressure or irritation.

To prevent bed-sores three things should be worked for *from the first:* relief from pressure, absolute cleanliness, and hardening of the skin. As the patient cannot be turned the first must be secured by the use of rubber air rings and cushions, cotton rings, and small pads. The second is secured by frequent bathing and changes of linen, and the last by rubbing the exposed parts of the body, especially the back, with alcohol of about 60 per cent. strength after each washing, and oftener if the skin is very tender. Some patients with thin dry skins do better if an unguent like vaseline or zinc oxide ointment is rubbed in after the alcohol has been applied. Massage is always useful as it promotes the circulation.

Sometimes patients complain that the air ring hurts them; usually this is because it is filled too full of air. If some is allowed to escape they will find it quite comfortable. But even if it is not very comfortable they should be encouraged to use it for a little while at a time at short intervals, as it is the only means we have for really relieving pressure over the end of the spine. A rubber water bottle may be filled with water or air to make a cushion and cotton batting may be made into rings and covered with cotton to slip under the heels.

When there is incontinence of urine or fæces, the parts must be washed with soap and water after each involuntary evacuation and boric ointment or zinc oxide ointment rubbed into the skin. When there is a constant dribbling, small parts of a cheap quality of absorbent cotton, or cotton and oakum may be placed between the thighs to absorb the moisture.

The existence of bed-sores should always be reported to the surgeon who usually will order the treatment, but if it is left to the nurse, she may use the following: When the skin only is broken the excoriated surface may be cleansed with a warm boric acid solution, 4 per cent., and boric ointment applied on a soft cloth covered with sheet wadding and held in place by a T-bandage if it is on the back, or an ordinary cotton bandage if on the heel. For convenience, the free end of the T-bandage may be split and the two ends pinned to the waistband like perineal straps. If there is suppuration or sloughing of the tissues beneath the skin the cavity may be cleansed with a small amount of peroxide of hydrogen followed by the boric acid solution and a hot boric acid dressing applied every three hours until the wound is clean; then it may be dressed with camphorated oil, eucalyptus vaseline, or balsam of pine, until the cavity is filled up with granulation tissue. After that time the wound may be dusted lightly with aristol and a dry dressing applied. After granulations have begun to form do not use gauze next

the wound as its removal tears off the young granulations and greatly delays healing; whatever dressing is used should be applied on old, soft cotton or linen.

Recovery is slow in these cases; six weeks is the average time required for union to take place in an adult and this convalescence may be prolonged for months. Crutches will have to be used for weeks after union is completed.

How much shall a nurse do for the entertainment of the patient during this time and what shall she do? That is a matter each one may decide for herself; it depends mostly on the patient, and tact and good judgment are needed.

A patient with a fracture is usually in full possession of his mental powers and may find the time go by very slowly unless some fresh interest is brought into his days, and discontent and restlessness may do much to delay convalescence. But others would rather be left alone after the necessary things are done, preferring their own thought to anyone's conversation, and the nurse should avoid officiousness.

Reading aloud is usually enjoyed, and it is better to keep a book or something with a sustained interest so that there will be something to look forward to, though short stories or magazine articles be read betweenwhiles. The nurse should study the patient's tastes and moods, be ready to be interested in whatever interests him, or to efface herself if he wishes to be quiet. She must not let the conversation degenerate into an exchange of petty personalities or tell hospital experiences, for it is on such cases as this that the temptation to both is the strongest. She should make a determined effort to interest herself in outside things that she may have other and more appropriate subjects for conversation.

The nurse should not make the mistake of spending all of her time in the sick room unless serious illness makes her presence absolutely necessary; both patient and nurse are the better for being relieved of each other's presence a part of the time, and she should make a point of seeing and remembering things of interest to tell the patient when they are together; a play or a concert, a picture, a well-arranged window display, even a pretty gown or a new kind of tea cake. "The world is so full of a number of things" that the fault is likely to be in herself if she cannot find something of interest among them, and one should cultivate the art of telling interestingly what she has seen.